

## Preface

Not long ago, audiologists had “conventional” hearing aids as their only option when trying to provide benefit to patients with severe-to-profound hearing loss. These fittings were often less than optimal due to the limited frequency range available with “conventional” hearing aids and the additional problems associated with feedback and the occlusion effect. As professionals, we did our best, but we wished better options were available for our patients with severe-to-profound hearing loss.

Recently, at least two manufacturers have introduced a new line of hearing aids for patients with severe-to-profound hearing loss. One hearing aid incorporates digital signal processing while the other hearing aid uses multiple-microphones. The Hearing Aid Research Laboratory at Washington University is currently investigating these two new hearing aid designs to determine if the benefit provided by this new technology is significantly better than that provided by previously worn hearing aids when they entered the project. We hope to report on the results of these projects in the near future.

Over the past decade, as the technology has evolved, one of the best current options for a patient with severe-to-profound hearing loss is the cochlear implant. This issue of *Trends* focuses on the use of cochlear implants with children. This issue begins with a comprehensive overview of how the cochlear implant has changed over the past 35 years from an extra-cochlear single-channel single-electrode design to the current intracochlear multiple-channel multiple-electrode array. Next, the authors provide a comprehensive overview of the tremendous changes that have occurred in the strategies used to program cochlear implants. This is then followed by a detailed explanation of the current criteria for implanting children with FDA-approved devices.

The issue continues by illustrating how a patient is assessed by members of the cochlear implant team to determine if the patient is a good candidate for the cochlear implant. This is followed by a brief overview of the implantation surgery. The issue continues with a comprehensive overview of programming the cochlear implant. Then this is followed with a detailed assessment of the education and training involved once the cochlear implant has been programmed. Finally, the issue concludes with a detailed summary of the research demonstrating the performance of cochlear implants in children.

From my own perspective, I continue to be amazed by the benefits provided by cochlear implants. I personally know of several implant patients who have progressed to the point where they are capable of communicating over the telephone with little difficulty! A few years ago no one would have thought this would be possible. This magnitude of improved benefit from cochlear implants is a continuing tribute to the numerous engineers, scientists and clinicians who work daily to improve upon the already impressive performance provided by these devices.

This issue is authored by Susan Waltzman and William Shapiro from New York University School of Medicine. Both authors have published extensively on cochlear implants over the past several years and both have presented their research findings at numerous scientific meetings.

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